

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A system for transporting and selectively sorting particles comprising:
 - a first wall and a traveling wave grid extending along said first wall;
 - a second wall having a passage extending therethrough, said passage having a first end and a second end;
 - a gate operatively associated with said passage, said gate including a first electrode proximate said first end and a second electrode proximate said second end; and,
 - a controller adapted to output a multi-phase electrical signal and in electrical communication with said traveling wave grid and said first and second electrodes of said gate, wherein the controller provides a first voltage to said first electrode and a second opposite voltage to said second electrode.
2. (Currently Amended) The ~~invention~~ system of claim 1, wherein said passage is comprised of a plurality of apertures extending through said second wall.
3. (Currently Amended) The ~~invention~~ system of claim 2, wherein said plurality of apertures are substantially cylindrical and have a diameter of from about 10 μm to about 250 μm .
- Claims 4-8 (Canceled)
9. (Currently Amended) The ~~invention~~ system of claim 1, wherein said traveling wave grid is a first traveling wave grid and said system further comprises a second traveling wave grid extending along said second wall.
10. (Currently Amended) The ~~invention~~ system of claim 1, wherein said first wall is

substantially cylindrical.

11. (Currently Amended) A system for transporting and selectively sorting particles comprising:

a housing having a first wall at least partially defining a first transport channel, a second wall at least partially defining a second transport channel, and a gating passage extending in fluid communication between said first and said second transport channels;

a traveling wave grid disposed along said first wall;

a gate operatively associated with said gating passage, said gate including a first electrode proximate the first transport channel and a second electrode proximate the second transport channel; and,

a voltage source adapted to output a multi-phase voltage signal and in electrical communication with said traveling wave grid and said first and second electrodes of said gate.

Claims 12-18 (Canceled)

19. (Currently Amended) The ~~invention~~ system of claim 11, wherein said traveling wave grid includes four conductor groups, each having a plurality of conductors, said conductor groups disposed in an inter-digitized pattern.

20. (Currently Amended) The ~~system~~ invention of claim 19, wherein said voltage source outputs a four phase voltage signal, and each of said four phases is applied to a different one of said conductor groups.

21. (Currently Amended) The ~~invention~~ system of claim 11, wherein said traveling wave grid is a first traveling wave grid and said gating passage is a first gating passage, said housing further includes a third wall at least partially defining a third transport channel and a second gating passage extending in fluid communication between said second and said third transport channels, and said system further includes a second traveling wave grid extending along said second wall.

22. (Currently Amended) The ~~invention~~ system of claim 21, wherein said gate is a first gate, and said system further includes a second gate operatively associated with said second gating passage.

23. (Currently Amended) A method of transporting and selectively sorting particles, said method comprising the steps of:

providing a first wall at least partially forming a first chamber, a second wall at least partially forming a second chamber, a passage wall at least partially defining a passage extending in fluid communication between said first and second chambers, a traveling wave grid disposed along said first wall, a gate operatively associated with said passage, said gate including first and second spaced apart electrodes disposed along said passage, and a controller adapted to selectively output a multi-phase electrical signal and in electrical communication with said traveling wave grid and said gate;

introducing a quantity of separable particles into said first chamber;

applying a multi-phase electrical signal from said controller across at least a portion of said traveling wave grid inducing flow of said quantity of separable particles along said first chamber; and,

selectively gating a portion of said quantity of separable particles flowing along said first chamber into said second chamber by said controller outputting an electrical signal having first and second phases, and applying said first phase to said first electrode of said gate and applying said second phase to said second electrode of said gate.

24. (Canceled)

25. (Original) The method of claim 23, wherein said step of providing includes providing a continuous particle supply apparatus in fluid communication with said first chamber, and said step of introducing a quantity of separable particles includes introducing a continuous quantity of separable particles from said supply apparatus.

26. (New) The system of claim 1 wherein the first voltage is a positive voltage and the second voltage is a negative voltage.

27. (New) The system of claim 1 wherein the first and second voltages are 180 degrees out of phase.
28. (New) A system for transporting and selectively sorting particles comprising:
a first wall and a traveling wave grid extending along said first wall;
a second wall having a passage extending therethrough, said passage having a first end and a second end;
a gate operatively associated with said passage, said gate including a first electrode proximate said first end and a second electrode proximate said second end; and,
a controller adapted to output a multi-phase electrical signal and in electrical communication with said traveling wave grid and said first and second electrodes of said gate, wherein the controller provides a unipolar voltage pattern to the first and second electrodes such that a voltage is applied to only one of the first and second electrodes at any time.
29. (New) The system of claim 28, wherein said passage is comprised of a plurality of apertures extending through said second wall.
30. (New) The system of claim 29, wherein said plurality of apertures are substantially cylindrical and have a diameter of from about 10 μm to about 250 μm .
31. (New) The system of claim 28 wherein the applied voltage is a positive voltage.
32. (New) The system of claim 28 wherein the applied voltage is a negative voltage.
33. (New) A system for transporting and selectively sorting particles comprising:
a housing having a first wall at least partially defining a first transport channel, a second wall at least partially defining a second transport channel, and a gating passage extending in fluid communication between said first and said second transport channels;
a first traveling wave grid disposed along said first wall;
a gate operatively associated with said gating passage;
a continuous particle supply apparatus in fluid communication with said first

transport channel, said supply apparatus including a supply housing at least partially defining a supply chamber, and a second traveling wave grid disposed within said supply chamber; and

a voltage source adapted to output a multi-phase voltage signal and in electrical communication with said first and said second traveling wave grid and said gate.

34. (New) The system of claim 33, wherein said supply apparatus further includes a support wall supported within said supply chamber and said second traveling wave grid extends along at least a portion of said support wall.

35. (New) The system of claim 34 wherein said support wall is generally cylindrical.

36. (New) The system of claim 33 wherein said gating passage is a first gating passage, and said supply apparatus is in fluid communication with said first transport channel through a second gating passage extending between said supply chamber and said first transport channel.